CLAIMS

I claim:

1. A method of decontaminating soil and ground water containing organic contaminants and divalent metal compounds, which comprises the steps of:

treating such soils and ground water with an effective amount an aqueous solution containing a peroxide and a water-soluble chelating agent for a time sufficient to have the water-soluble chelating agent chelate at least one of the divalent metals of the divalent metal compounds present in the soils and ground water;

reacting the chelated metals with the peroxide to catalytically convert the peroxide to an oxidizing agent; and then,

contacting the organic contaminants in the soil and ground water with the oxidizing agent to oxidize the organic contaminants to environmentally safe, non-toxic compounds.

2. The method of Claim 1, where the divalent metal compound is an iron compound.

3. The method of Claim 1, where the water-soluble chelating agent is an aminopolycarboxylate chelating agent.

4. The method of Claim 1, where the aminopolycarboxylate-chelating agent is an alkylenepolyamine polyarboxylate chelating agent.

5. The method of Claim 1, where the aminopolycarboxylate chelating agent is present in the aqueous solution in an amount from about 0.03 to about 0.09 1.5 Moles/Liter and the peroxide in an amount ranging from about 0.6 to about 4.5 Moles/Liter.

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6. The method of Claim 4, where the alkylenepolyamine polyarboxylate is a blend of alkyleneamine polycarbloxylate chelates.

7. The method of Claim 4, where the chelating agent is from the group consisting of ethylienediaminetetraacetic acid, diethylenetriaminepentaacetic acid, and ethylenedianvnc-di(o-hydroxyphenylacetic acid).

8. The method of Claim 7, where the chelating agent is a blend of two or more of ethylienediaminetetraacetic acid, diethylenetriaminepentaacetic acid, and ethylenedianvnc-di(o-hydroxyphenylacetic acid).

9. The method of Claim 1, where the pH of the aqueous solution of the peroxide and a water-soluble chelating agent is at least 7.0.

10. The method of Claim 8, where the pH of the aqueous solution of the peroxide and a water-soluble chelating agent is between 7.0 and 9.5.

11. The method of Claim 8, where the aqueous solution of the peroxide and a water-soluble chelating agent contains an alkaline buffering agent.

12. The method of Claim 10, where the alkaline buffering agent is alkaline phosphate salt and urea phosphate.

13. The method of Claim 1, where the peroxide is a metal peroxide or mixture thereof.